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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/880,223	06/13/2001	Louis L. Hsu	728-208(YOR9-2001-0270 US	5309

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EXAMINER

RAO, SHRINIVAS H

ART UNIT PAPER NUMBER

2814

DATE MAILED: 12/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/880,223	HSU ET AL.	
	Examiner	Art Unit	
	Steven H. Rao	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 1-11 and 18-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 12-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Priority

The application as currently filed does not claim priority from any earlier filed application. Therefore currently the earliest available filling date is the U.S. filling date of the instant application, namely June 13, 2001.

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-11, are drawn to a memory system, classified in class 257, subclass 296.
- II. Claims 12-17, are drawn to a T-Ram cell, classified in class 257, subclass 107.
- III. Claims 18-28, are drawn to a method of making T-Ram cells, classified in class 438, subclass 149.

Inventions Group I and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the subcombination namely the

T-Ram cell has separate utility such as a switching devices in circuits other than memory systems.

Inventions Group II and III are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process namely the transfer gate for each of the plurality of T-Ram cells need not be over at least a portion of the thyristor region.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II or III, restriction for examination purposes as indicated is proper.

During a telephone conversation with Mr. Paul Ferrel (R. No. 33,494) on 12/02/02 @ 1.45 p.m. and 12/05/02 (516) 228-8484 a provisional election was made without traverse to prosecute the invention of Group II, claims 12-17. Affirmation of this election must be made by applicant in replying to this Office action.

Claims 1-11 and 18-28 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim

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remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Information Disclosure Statement

Acknowledgment is made of receipt of Applicant's Information Disclosure Statement (PTO-1449) filed on Jun 13, 2001.

The references on PTO 1499 submitted on 6/13/2001 are acknowledged. All the cited references have been considered. However the foreign patents and documents cited by applicant are considered to the extent that could be understood from the abstract and drawings.

Drawings

The drawings filed on June 13, 2001 have been objected to by the drafts person for reasons indicated on the enclosed PTO-948 . Appropriate correction is required.

Applicant is required to submit a proposed drawing correction in reply to this Office action. Failure to timely submit the proposed drawing correction will result in the abandonment of the application.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 17 the phrase "includes structure for traversal " renders the claim indefinite because the term "includes structure for traversal " and especially the term "structure" does not clearly state what applicants' intend to include/exclude by the above recitation.

Further the specification, prior art or knowledge of one of ordinary skill in the art does not clarify what applicants' intend to include/exclude by the phrase "includes structure for traversal ". Therefore making the claim 17 indefinite.

It is suggested that Applicants' may specifically identify and describe the structure they intend to claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nemati et al. (U.S. Patent .No. 6,448,586 herein after Nemati).

With respect to claim 12, a T-Ram array including a plurality of T-Ram cells (Nemati fig. 8, col. 6 lines 65-66), wherein each of the plurality of T-Ram cells includes a thyristor region beneath at least a portion of a transfer gate region. (Nemati fig.8, p portion of 40 a, b, and c under respective gate 48).

Nemati does not label his gate as a transfer gate however it is inherent from the description in col. 7 lines 1-15 that Nemati's gate 48 functions like a pseudo TFT (similar to applicant's description at page 5 of the specification) and therefore one of ordinary skill in the art would readily recognize Nemati's gate 48 to be a transfer gate similar to that claimed.

With respect to claim 13, wherein the thyristor region includes a buried vertical thyristor (Nemati fig. 8 p-region) and the transfer gate region includes a horizontally stacked pseudo-TFT transfer gate (Nemati fig. 8 , col. 7 lines 1-15).

With respect to claim 14, wherein each of the plurality of cells has a size less than or equal to $8F^2$. (It is well known in the prior art that T-ram cells have a size of $8F^2$ or less as admitted by the applicants' herein in their co-pending application No.2002/0093030 published on July 18, 2002 in its abstract lines 10 –13 etc.)

With respect to claim 15, wherein each of the plurality of T-Ram cells are fabricated on a semiconductor SOI or bulk wafer (Neamti fig. 6a # col. 6 lines 20-27).

With respect to claim 16, wherein the base of the thyristor is surrounded by a surround gate . (Nemati fig. 8 thyristors 40 a, b and c being surrounded by the gate 48).

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With respect to claim 17, to the extent understood, wherein each of the plurality of T-Ram cells includes structure for the traversal of at least two word lines there through. (Nematî fig. 5, col. 5 lines 33-60).

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Steven H. Rao whose telephone number is (703) 306-5945. The examiner can normally be reached on Monday- Friday from approximately 7:00 a.m. to 5:00 p.m.

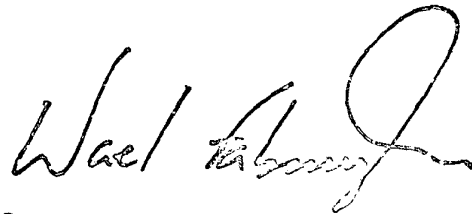
Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956. The Group facsimile number is (703) 308-7724.



Steven H. Rao

Patent Examiner

December 10, 2002.



SUPERVISORY PRIMARY EXAMINER
TECHNOLOGY CENTER 2600